Biofizika 2000 vol.45 N2, pages 298

Modeling of two-waves ATP-induced currents in pheochromocytoma cells in responce to jupms of agonist concentration

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Abstract

A model for the kinetics of conformational transitions of ionotropic ATP receptors in pheochromocytoma cells was elaborated. The contribution of the states of ionotropic receptors (upon the blockage of the «open» channel state) to the kinetics of postsynaptic currents was estimated at mediator concentrations studied. The model enables one to determine the contribution of various conformational states of the receptor, in particular in the «closed» state, to the dynamics of ionic current that is registered upon stimulation of ATP receptors. It is shown that after the cessation of the agonist application, a secondary current wave can arise. The rate constants for conformational transitions of ATP receptors were determined.

Keywords

ATP receptors, Modeling, Rebound phenomenon